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WEST VIRGINIA

AGRICULTURAL EXPERIMENT STATION,

MORGANTOWN, W. VA.

BULLETIN 63.

JANUARY 1ST, 1900.

Commercial Fertilizers.

BY J. H. STEWART AND B. H. HITE.

[The Bulletins and Reports of this Station will be mailed free to any citizen of West Virginia upon written application. Address Director of Agricultural Experiment Station, Morgantown, W. Va.]

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*Died, Jan. 14th, 1900.

REPORT OF THE WORK ON COMMERCIAL
FERTILIZERS, FOR THE YEAR
ENDING DECEMBER 31, 1899.

During the past year 204 brands of Commercial Fertilizers were submitted by manufacturers for registration in this State. This exceeds the number registered in any previous year by 32 brands, or more than 18 %. Of course, it does not necessarily follow that the sales increased to the same extent, but the tags issued during the year show that the sales have increased even more rapidly than the brands. The sale of tags would indicate that 39,106 tons of fertilizers have been shipped into the State during the past year, which according to the Station's valuations should have retailed at \$771,672. This exceeds the sales of last year (which were heavier than those of any previous year), by more than 7,000 tons, \$164,000 and 23 %.

Similar data in regard to the quantity and approximate value of all classes of Commercial Fertilizers sold in the State during the last five years will be found in Table I.

It should be borne in mind—1st, that the valuations given in this table are all based on the prices of materials at the time the fertilizers were on sale; 2d, that all figures are based on the number of tags issued, which must always fall short of indicating the total sales, as large quantities of special mixtures are shipped directly from the manufacturers to the consumers, and do not come under our supervision, so the figures given are probably all very conservative, although at the present rate of increase the year 1900 will find them very near the million dollar mark.

TABLE I.

Quantity and value of Commercial Fertilizers sold in this State during the last five years, as estimated from the sale of tags and the Station's valuations.

CLASS.	Year.	Number of tons sold.	Part of total sales for the year.	Approximate value (retail.)	Average price per ton.
Acid Phosphates.....	1895	11,252	52.19%	\$176,826	\$15.72
	1896	12,447	43.77%	199,148	16.00
	1897	13,723	50.40%	221,809	16.16
	1898	15,169	47.71%	241,201	15.91
	1899	18,172	46.47%	301,559	16.60
Acid Phosphates with Potash	1895	1,400	6.49%	25,238	18.03
	1896	2,598	9.14%	45,845	17.65
	1897	2,863	10.51%	49,503	17.29
	1898	3,983	12.24%	66,988	17.21
	1899	6,549	16.75%	118,583	18.10
Complete Fertilizers	1895	6,782	31.46%	165,842	24.45
	1896	10,083	35.46%	235,528	23.36
	1897	8,097	29.73%	194,439	24.01
	1898	10,443	32.85%	242,567	23.23
	1899	11,345	29.00%	276,996	24.32
Ground Bones	1895	1,315	6.10%	37,891	28.81
	1896	2,675	9.41%	77,509	28.98
	1897	1,418	5.21%	39,121	27.58
	1898	1,395	4.39%	38,760	27.78
	1899	1,970	5.04%	48,221	24.49
Acidulated Bones (and a few miscellaneous materials.)	1895	810	3.76%	13,808	17.05
	1896	630	2.22%	16,635	26.40
	1897	1,130	4.15%	27,293	24.15
	1898	892	2.81%	17,415	19.52
	1899	1,070	2.74%	26,315	24.60
<i>Totals of all Classes.....</i>	1895	21,559	100.00%	419,605	19.46
	1896	28,433	100.00%	574,665	20.21
	1897	27,233	100.00%	532,165	19.54
	1898	31,792	100.00%	606,931	19.09
	1899	39,106	100.00%	771,672	19.22

The column headed "Number of tons sold" shows that during the last four years the sales of the various classes of fertilizers have increased (over the sales of 1895) as follows:

Acid Phosphates	62 per cent.
Acid Phosphates with Potash	368 per cent.
Complete fertilizers	67 per cent.
Ground bones.....	50 per cent.
Acidulated bones.....	32 per cent.
Total sales of all classes	81 per cent.

The remarkable increase in the case of acid phosphates with potash is worthy of special mention. It is even more clearly shown in the next column of the table, which gives the part represented by the various classes of fertilizers in the total sales for each year and from which it will be seen that in the case of acid phosphates with potash even the rate of increase is increasing; this largely at the expense of the plain acid phosphate. This is not due to any accident, or oversight, or to any special effort on the part of any one to promote the sale of this class of fertilizers, but rather to the experience of those who use them and doubtless has its explanation in the needs of certain crops on the soils of those sections to which the largest shipments are made. The station will look into this matter in connection with the work on soils.

The table shows that acid phosphates have constituted about one-half (by weight) of the total sales. In the five years they have lost to other classes to the extent of nearly six per cent. Still they are far in the lead and will probably continue so. They meet one crying need of the soils of this State, namely available phosphoric acid, and there are other reasons for their popularity. Farmers have been using them for a long time and know just what to expect of them. They are the cheapest fertilizers on the market and are probably sold at smaller profit to the agents than any other class of fertilizer.

The sales of complete fertilizers have been somewhat irregular. For the five years they will average nearly one-third of the total sales, but they have lost nearly two and a half per cent. since 1894.

Ground bones will average six per cent. of the total sales, but they have not reached this figure since 1896.

Acidulated bones represent the smallest part of the total sales with an average of about three per cent. For a number of reasons it would seem that this class of fertilizers ought to be more popular. They are, as a rule, most excellent goods. While they are not "complete" fertilizers they do contain in a most acceptable form the two constituents of plant food (phosphoric acid and nitrogen) that are most likely to be deficient in the soils of this State. They are the genuine "dissolved bone phosphates," and it would seem that the prejudice against dissolved phosphate rock (to which manufacturers evidently mean to cater, when they call the latter dissolved "bone") should be in their favor. Conditions in this State would certainly entitle this class of fertilizers to a better showing than three per cent. of the total sales.

TABLE II.
Analysis of Commercial Fertilizers—1899.

NAME AND ADDRESS OF MANUFACTURER.	NAME OF BRAND.	ANALYSIS										NAME OF BRAND.	NAME OF MANUFACTURER.		
		Total Nitrogen	Nitrogen in Organic Sample	Nitrogen Guaranteed	Avaliable Phosphoric Acid in Organic Sample	Phosphoric Acid in Organic Sample	Total Phosphoric Acid in Organic Sample	Insoluble Phosphoric Acid in Organic Sample	Revertible Phosphoric Acid in Organic Sample	Guaranteed Phosphoric Acid in Organic Sample	Insoluble Phosphoric Acid in Organic Sample	Guaranteed Phosphoric Acid in Organic Sample			
Allison & Addison, Richmond, Va.	B. P. Potash Mixture	8.15	2.70	0.51	1.00	11.36	11.00	10.85	10.00	2.79	2.00	17.50	15.75	1.75	
Allison & Addison, Richmond, Va.	Star Brand Guano	6.32	1.96	2.90	1.00	11.18	9.00	8.28	8.00	2.06	1.65	12.27	1.00	23.25	
Allison & Addison, Richmond, Va.	Little Giant Corn Grower	6.69	1.96	1.73	1.00	10.38	9.00	8.65	8.00	1.14	0.82	12.78	2.00	20.25	
Allison & Addison, Richmond, Va.	Little Giant for Wheat & Grass	6.68	1.99	1.74	1.00	10.41	9.00	8.65	8.00	1.14	0.82	12.70	2.00	20.25	
Allison & Addison, Richmond, Va. . . . I. X. L. Acid Phosphate	10.18	2.67	1.00	1.00	13.85	14.00	12.85	13.00	... . . . .	... . . . .	... . . . .	15.50	15.75	0.25	
Allison & Addison, Richmond, Va. . . Standard Acid Phosphate	9.02	2.89	1.07	1.00	13.58	13.00	12.51	12.00	... . . . .	... . . . .	... . . . .	15.25	14.75	0.50	
Armour Fertilizer Co., Chicago, Ill.	Bone Meal	9.31	6.00	3.52	3.50	2.41	2.00	15.24	12.00	12.83	10.00	... . . . .	32.25	36.25	6.00
Armour Fertilizer Co., Chicago, Ill.	Phosphate and Potash	4.99	6.00	4.23	2.00	3.19	2.00	12.41	10.00	9.22	8.00	2.38	1.65	2.77	2.00
Armour Fertilizer Co., Chicago, Ill.	C-rain Grower	5.25	4.00	3.59	2.00	2.65	2.00	11.49	8.00	8.84	6.00	3.40	2.47	3.75	2.00
Armour Fertilizer Co., Chicago, Ill.	Ammoniated Bone & Potash	2.17	7.00	8.88	4.00	2.03	1.00	13.08	12.00	11.05	11.00	... . . . .	2.66	2.00	18.00
Baltimore Guano Co., Baltimore, Md.	Defiance Bone	5.73	5.00	2.38	3.00	1.97	2.00	10.08	10.00	8.11	8.00	1.27	1.25	2.49	2.00
Baltimore Guano Co., Baltimore, Md.	B. G. Ammoniated Bone	11.16	9.00	2.99	5.00	2.25	1.00	16.40	15.00	14.15	14.00	... . . . .	17.25	16.75	0.50
Baltimore Pulv. Co., Baltimore, Md. [S. C. Bone	12.33	3.11	1.69	1.73	1.69	1.40	1.40	15.44	14.00	15.44	14.00	... . . . .	18.25	16.50	1.75

Difference between Values.
Valuation of Guaranteed Analyses.

TABLE II.—*Continued.*

TABLE II.—Continued.

NAME AND ADDRESS OF MANUFACTURER,	NAME OF BRAND.	ANALYSIS OF OMCETAL SAMPLE.										ANALYSIS OF GUARANTEED SAMPLE.		DIFFERENCE BETWEEN VALUES.	
		Total Phosphate Acid	Soluble Phosphate Acid	Reverted Phosphate Acid in Omcetal Sample	Reverted Phosphate Acid in Guaranreed	Total Phosphate Acid in Omcetal Sample	Soluble Phosphate Acid	In Omcetal Sample	In Guaranreed	Total Phosphate Acid	Soluble Phosphate Acid	In Omcetal Sample	Nitrogen in Omcetal Sample	Potash in Omcetal Sample	Potash Guaranteed
Bowker Fertilizer Co., Boston, Mass.	Bowker's Soluble Bone	10.77	3.80	1.45	... 16.02	14.57	14.00	...	...	17.25	16.50	0.75			
Blocher, D. & Co., Gettysburg, Pa.	Dissol'd Bone Phosphate, S. C.	12.96	12.00	3.74	3.50	0.21	... (6.91)	(6.70)	(5.00)	19.00	17.50	1.50			
Blocher, D. & Co., Gettysburg, Pa.	Dissol'd Raw Bone and Potash	9.10	8.50	1.50	2.00	1.51	2.00	12.41	12.00	10.90	10.00	2.16	1.50	2.00	2.25
Bradley Fertilizer Co., New York, ...	Alkaline Bone	5.87	6.00	5.70	5.00	3.98	1.00	13.85	13.00	11.57	11.00	...	2.32	2.43	18.75
Bradley Fertilizer Co., New York, ...	Dissolved Bone and Potash	8.02	6.00	1.70	... 1.70	2.00	1.00	11.51	10.00	9.81	8.00	1.11	1.00	4.08	21.00
Bradley Fertilizer Co., New York, ...	Potato Fertilizer	5.35	6.00	1.13	... 1.51	2.00	1.00	11.00	11.00	9.48	9.00	2.64	2.00	4.05	3.25
Bradley Fertilizer Co., New York, ...	Bean and Potato Fertilizer	8.15	... 1.14	... 1.80	2.00	11.39	10.00	9.50	8.00	1.07	1.00	3.79	3.25	2.25	3.75
Bradley Fertilizer Co., New York, ...	Acid Phosphate	7.69	... 3.06	... 1.80	... 1.25	... 10.75	10.00	...	...	...	...	...	...	1.70	0.00
Bradley Fertilizer Co., New York, ...	Dissolved Bone	11.02	... 3.21	... 1.61	... 1.57	13.00	11.25	13.00	11.00	...	...	...	...	1.70	15.50
Bradley Fertilizer Co., New York, ...	Abattoir Bone Dust	...	...	...	...	18.30	...	...	...	2.01	1.05	...	...	21.35	...
Bradley Fertilizer Co., New York, ...	Niagara Phosphate	3.21	6.00	3.77	... 2.53	1.00	9.51	8.00	7.01	7.00	1.58	1.00	1.49	2.00	19.00
Chemical Co. of Canton, Balti, Md.	Baker's Standard Grou'd Bone	12.72	9.00	2.65	5.00	0.59	1.00	15.91	15.00	15.40	14.00	...	3.49	4.00	...
Chemical Co. of Canton, Balti, Md.	Pure Dissolved S. C. Bone	...	...	...	...	...	...	20.48	18.00	...	...	...	...	...	29.00
Chemical Co. of Canton, Balti, Md.	Soluble Bone and Potash	8.56	6.00	2.70	4.00	0.61	1.00	11.96	11.00	11.25	10.00	...	3.45	2.00	19.00
Chemical Co. of Canton, Balti, Md.	Baker's Wh't, C'n & Gr's Mixt.	4.72	6.00	4.31	3.00	2.25	1.00	11.28	10.00	9.03	9.00	1.13	0.82	4.25	2.60
Chemical Co. of Canton, Balti, Md.	Grom Dissolved Bone	10.55	8.00	2.40	4.00	2.66	2.00	15.70	14.00	13.04	12.00	...	...	...	16.25
Chemical Co. of Canton, Balti, Md.	Harrow Brand Crop Grower	4.01	5.00	4.23	3.00	2.30	1.00	10.57	9.00	8.27	8.00	1.17	0.82	2.19	1.00

TABLE II.—*Continued.*

TABLE II.—*Continued.*

NAME AND ADDRESS OF MANUFACTURER.	NAME OF BRAND	Differences between Values.										
		Soluble Phosphate Acid in Olfacial Sample.	Reverted Phosphate Acid in Olfacial Sample.	Insoluble Phosphate Acid in Olfacial Sample.	Total Phosphate Acid in Olfacial Sample.	Total Phosphate Acid in Olfacial Sample.	Avaliable Phosphate Acid in Olfacial Sample.	Nitrogen in Olfacial Sample.	Potash in Olfacial Sample.	Potash Guaranteed.	Difference between Assays.	
Detrick Fer. & Chem. Co., Balt. Md.	Imperial Compound.....	6.90	7.90	3.28	2.00	2.19	1.50	11.87	10.50	9.68	9.00	9.91
Detrick Fer. & Chem. Co., Balt. Md.	Standard Potash Fertilizer.....	6.32	6.00	3.05	2.00	2.45	1.00	11.82	9.00	9.37	8.00	1.36
Detrick Fer. & Chem. Co., Balt. Md.	Dissolved S. C. Bone.....	11.45	11.00	2.68	3.00	2.32	0.75	16.45	14.75	14.13	14.00	... ..
Detrick Fer. & Chem. Co., Balt. Md.	Royal Crop Grower.....	5.33	6.00	3.04	2.00	2.80	2.00	11.17	10.00	8.37	8.00	1.79
Detrick Fer. & Chem. Co., Balt. Md.	Soluble Bone Phosphate & Potash.....	2.32	8.00	7.79	2.00	2.01	2.00	12.12	12.00	10.11	10.00	... ..
Detrick Fer. & Chem. Co., Balt. Md.	Fine Ground Animal Bone.....	1.87	8.00	8.64	2.06	2.17	2.50	12.68	12.50	10.51	10.00	... ..
Detrick, Louis F., Baltimore, Md.	Bone and Potash Mixture.....	5.73	6.00	3.44	2.00	3.47	3.50	12.64	11.50	9.17	8.00	1.85
Detrick, Louis F., Baltimore, Md.	Orchilla Guano.....	4.61	4.61	11.20	... ..	15.81	14.00	4.61	... ..	... ..	4.03	2.25
Detrick, Louis F., Baltimore, Md.	Kangaroo Komplete Compound.....	4.35	6.00	4.26	2.00	3.07	3.00	11.78	11.00	8.71	8.00	1.17
Detrick, Louis F., Baltimore, Md.	Sockless & Shoeless Phosphate.....	11.35	11.00	9.80	3.00	2.30	0.75	16.45	14.75	14.15	14.00	... ..
Eureka Fertilizer Co., Perryville, Md.	Xxtra Acid Phosphate.....	13.51	... ..	3.17	... ..	3.06	2.00	19.74	16.00	16.68	14.00	... ..
Great Eastern Fer. Co., Rutland, Vt.	G. E. Soluble Bone and Potash.....	8.07	9.00	3.48	2.00	1.64	... ..	13.19	... ..	11.55	11.00	... ..
Great Eastern Fer. Co., Rutland, Vt.	G. E. Corn.....	6.59	6.00	2.16	2.00	1.74	... ..	10.49	... ..	8.75	8.00	1.30
Great Eastern Fer. Co., Rutland, Vt.	G. E. Dissolved Bone.....	11.12	11.00	3.28	3.00	0.84	... ..	15.24	... ..	14.40	14.00	... ..
Great Eastern Fer. Co., Rutland, Vt.	G. E. Wheat Special.....	7.11	6.00	2.24	2.00	2.23	... ..	11.58	... ..	9.35	8.00	1.73
Great Eastern Fer. Co., Rutland, Vt.	G. E. English Wheat Grower.....	7.00	6.00	2.30	2.00	1.96	... ..	11.26	... ..	9.30	8.00	0.35

TABLE II.—Continued.

NAME AND ADDRESS OF MANUFACTURER.	NAME OF BRAND	Differences between Values.									
		Soluble Phosphate Acid in Mineral Sample.	Reverted Phosphate Acid in Mineral Sample.	Insoluble Phosphate Acid in Mineral Sample.	Total Phosphate Acid in Mineral Sample.	Available Phosphate Acid in Mineral Sample.	Nitrogen in Mineral Sample.	Potash in Mineral Sample.	Valuation of Official Sample.	Analysts.	Difference between Values.
Great Eastern Fer. Co., Rutland, Vt.	G. E. Pure Bone.....	6.90	6.00	2.55	2.00	1.30	...	...	22.18	22.00	...
Great Eastern Fer. Co., Rutland, Vt.	G. E. Vegetable, Vine & Tobac.	6.90	6.00	2.55	2.00	1.30	...	10.75	...	9.45	8.00
Hesse, S. M., & Bro., Philadelphia.	Emperor Phosphate.....	8.75	3.19	2.00	1.22	2.00	13.16	10.00	11.94	8.00	...
Hesse, S. M., & Bro., Philadelphia.	Keystone Bone Phosphate	5.54	9.00	2.24	2.00	1.89	4.00	9.67	11.00	7.78	7.00
Hesse, S. M., & Bro., Philadelphia.	Soluble Bone	10.23	12.00	4.14	2.00	1.52	...	15.89	14.00	14.37	14.00
Jarecki Chemical Co., Sandusky, O.	O. C. O. D. Phosphate.....	12.72	...	3.95	...	1.23	1.00	18.00	15.00	16.67	14.00
Jarecki Chemical Co., Sandusky, O.	No. 1 Fish Guano	3.19	...	2.48	...	1.07	1.00	7.46	7.00	6.39	6.00
Lippitt, W. F., Charles Town, W. Va.	Special Mixture.....	4.02	7.00	3.00	1.00	0.97	1.00	8.19	9.00	7.22	8.00
Maryland Fert. & Mfg Co., Balt., Md.	Dissolved Phosphate	11.74	10.00	3.30	4.50	0.54	1.00	15.58	15.50	15.04	14.50
Maryland Fert. & Mfg Co., Balt., Md.	Dissolved S. C. Bone	12.17	9.00	2.50	5.00	0.67	0.50	15.34	14.50	14.67	14.00
Maryland Fert. & Mfg Co., Balt., Md.	Linden Superphosphate.....	5.19	7.00	5.75	4.00	1.09	1.00	12.03	12.00	10.94	11.00
Maryland Fert. & Mfg Co., Balt., Md.	Tornado Fertilizer	9.67	7.25	2.18	3.75	0.50	0.88	1.00	12.73	12.00	11.85
Maryland Fert. & Mfg Co., Balt., Md.	Globe Complete Manure.....	6.00	6.00	3.12	3.00	3.32	1.00	12.44	10.00	9.12	9.00
Maryland Fert. & Mfg Co., Balt., Md.	Ammoniated Bone.....	6.40	6.00	3.04	3.00	3.40	1.00	12.89	10.00	9.44	9.00
Marietta Bone & Pho. Co., Marietta, O.	High Grade Superphosphate..	0.75	....	7.34	....	2.48	3.00	9.67	10.00	7.19	7.00

TABLE II.—Continued.

NAME AND ADDRESS OF MANUFACTURER.	NAME OF BRAND.	Soluble Phosphate Acid in Omeital Sample.	Soluble Phosphate Acid in Omeital Sample.	Revered Phosphate Acid in Omeital Sample.	Revered Phosphate Acid in Omeital Sample.	Insoluble Phosphate Acid in Omeital Sample.	Insoluble Phosphate Acid in Omeital Sample.	Total Phosphate Acid in Omeital Sample.	Total Phosphate Acid in Omeital Sample.	Acid in Omeital Sample.	Acid in Omeital Sample.	Total Phosphate Acid in Omeital Sample.	Acid in Omeital Sample.	Nitrogen in Omeital Sample.	Avaliable Phosphate Acid in Omeital Sample.	Avaliable Phosphate Acid in Omeital Sample.	Potash in Omeital Sample.	Potash Guaranteed.	Valuation of Official Sample	Difference between Value	
Northwestern Fert. Co., Chicago, Ill.	Garden City Superphosphate...	5.77	5.00	3.39	3.00	1.83	2.00	10.99	10.00	9.16	8.00	2.52	2.50	1.79	0.51	25.00	22.35	2.75			
Northwestern Fert. Co., Chicago, Ill.	Acidulated Bone	6.20	7.00	4.45	3.00	2.95	2.00	13.70	12.00	10.75	10.00	1.58	1.00	...	...	20.50	17.25	3.25			
Ober, G., & Sons, Co., Baltimore, Md.	Dissolved Bone Phosphate...	13.10	11.00	2.87	3.00	0.41	2.00	16.38	16.00	15.97	14.00	...	...	...	...	18.50	17.00	1.50			
Ober, G., & Sons, Co., Baltimore, Md.	Bone Phos. & Potash...	9.34	9.00	2.49	2.00	1.22	2.00	13.05	13.00	11.83	11.00	...	...	3.22	2.00	19.25	17.00	2.25			
Ober, G., & Sons, Co., Baltimore, Md.	Farmers' Standard A. & Phos...	9.16	6.00	0.96	2.00	0.77	2.00	11.49	10.00	10.72	8.00	1.84	1.75	2.57	2.00	25.00	21.25	3.75			
Ober, G., & Sons, Co., Baltimore, Md.	Farmers' Mixture.....	8.34	7.00	1.61	2.00	0.73	2.00	10.68	11.00	9.95	9.00	1.41	0.75	2.91	3.00	22.35	18.00	4.50			
Ober, G., & Sons, Co., Baltimore, Md.	Shenandoah Bone Phosphate...	9.12	6.00	2.44	...	0.70	3.00	12.26	11.00	11.56	8.00	1.76	1.65	3.36	2.00	26.25	18.00	8.25			
Ober, G., & Sons, Co., Baltimore, Md.	Special Mixture for Wheat...	9.13	6.00	2.00	2.00	1.13	2.00	12.26	10.00	11.13	8.00	1.38	1.00	3.19	1.50	24.25	17.00	6.75			
Ober, G., & Sons, Co., Baltimore, Md.	Special Wheat Comp'd...	8.57	6.50	2.68	2.00	1.54	1.50	12.79	10.00	11.25	8.50	2.01	1.40	3.01	2.00	26.75	20.25	6.50			
Ohio Farmers' Fer. Co., Columbus, O.	Acid Phosphate	6.47	...	3.29	...	4.08	1.00	13.84	10.00	9.76	9.00	...	...	...	...	13.25	12.00	1.25			
Ohio Farmers' Fer. Co., Columbus, O.	Corn, Oats & Wheat Fish Guano	5.82	...	7.79	...	6.32	1.00	19.93	10.00	13.61	9.00	1.77	1.25	3.86	2.00	29.00	19.75	9.25			
Ohio Farmers' Fer. Co., Columbus, O.	Tob. Grower, Potato & Turn F	5.18	...	4.58	...	4.48	1.00	14.34	9.00	9.76	8.00	3.44	2.50	5.28	4.00	35.00	27.00	8.00			
Ohio Farmers' Fer. Co., Columbus, O.	Fine Ground Bone Meal .....	...	...	...	...	...	...	21.80	20.00	...	...	2.03	1.75	...	...	23.50	21.00	2.50			
Ohio Farmers' Fer. Co., Columbus, O.	Grain and Grass	7.30	...	4.79	...	4.51	1.00	16.60	13.00	12.09	12.00	...	...	2.79	1.00	19.75	16.25	3.50			
Ohio Farmers' Fer. Co., Columbus, O.	Superior Phosphate	8.48	...	3.15	...	2.72	1.00	14.35	14.00	11.63	13.00	...	...	...	...	14.75	15.75	-1.00			
Old Dominion Guano Co., Norfolk, Va.	O. D. High Grade Bone Phos.	10.83	...	3.51	...	1.85	...	16.18	...	14.33	13.00	...	...	...	...	17.25	15.50	1.75			
Old Dominion Guano Co., Norfolk, Va.	Royster's High Grade Acid Ph.	11.03	...	1.60	...	2.56	...	15.19	...	12.63	12.00	...	...	...	...	15.50	14.50	1.00			

TABLE II.—Continued.

NAME AND ADDRESS OF MANUFACTURER.

NAME OF BRAND.

NAME AND ADDRESS OF MANUFACTURER.	NAME OF BRAND.	Soluble Phosphate Acid in Omelal Sample.	Soluble Phosphate Acid in Omelal Sample.	Total Phosphate Acid in Omelal Sample.	Total Phosphate Acid in Omelal Sample.	Avaliable Phosphate Acid in Metal Sample.	Nitrogen in Metal Sample.	Potash in Metal Sample.	Nitrogen in Metal Sample.	Avaliable Phosphate Acid in Metal Sample.	Potash Guaranteed.	Vaularion of Metal Sample.	Difference between Values.	
Old Dominion Guano Co., Norfolk, Va.	H. G. Alkaline Bone & Potash.	8.76	2.88	2.66	14.30	11.64	10.00	8.51	8.00	2.15	1.65	2.59	2.00	21.25
Old Dominion Guano Co., Norfolk, Va.	O. D. Special Wheat Guano.	6.64	1.87	2.89	11.40	... ...	...	...	...	...	...	...	...	15.50
Pacific Guano Co., New York.	Diss. Bone Phosphate of Lime.	11.69	12.00	3.41	2.00	1.78	1.00	15.88	15.00	14.10	14.00	...	...	17.00
Pacific Guano Co., New York.	Pacific Acid Phosphate.	8.02	7.00	3.60	3.00	1.80	2.00	12.42	12.00	10.62	10.00	...	...	13.75
Pacific Guano Co., New York.	Dissolved Bone and Potash.	6.13	4.40	4.40	3.80	2.40	2.40	12.73	10.53	10.00	10.00	...	2.01	2.00
Pacific Guano Co., New York.	Potato Phosphate.	4.32	5.00	2.48	1.00	1.73	1.00	8.53	7.00	6.80	6.00	1.42	1.23	4.68
Pacific Guano Co., New York.	Nobsque Guano.	7.88	5.00	2.83	3.00	1.78	1.00	12.49	9.00	10.71	8.00	1.52	1.40	2.56
Pacific Guano Co., New York.	No. 1 Phosphate.	5.50	4.00	1.89	3.00	2.14	1.00	9.53	8.00	7.39	7.00	1.65	1.25	1.51
Pacific Guano Co., New York.	Pure Bone Meal.	...	...	...	...	...	...	20.56	...	...	...	3.24	2.45	...
Pacific Guano Co., New York.	Fine Ground Bone.	...	...	...	...	18.15	...	...	...	...	...	2.01	2.00	...
Pied'mt-Mt. Airy Guano Co., Balto.	Pied't Pure Raw Bone Mixture.	5.82	3.53	1.79	4.00	1.14	1.14	9.35	8.00	1.78	1.03	2.65	1.50	23.50
Pied'mt-Mt. Airy Guano Co., Balto.	Pied't Royal Amm'ated Bone.	5.35	1.49	1.04	1.00	7.88	7.00	6.84	6.00	1.05	1.04	3.43	3.00	19.00
Pied'mt-Mt. Airy Guano Co., Balto.	Pied't Dis. Bone Phos., P. Grds.	9.37	...	1.21	...	1.17	0.50	11.75	11.00	10.58	10.00	...	1.40	1.00
Pied'mt-Mt. Airy Guano Co., Balto.	Pied't High Grade S. C. Bone.	11.71	...	2.74	...	1.20	1.00	15.05	15.00	14.45	14.00	...	...	17.25
Rasin Monumental Fert. Co., Balto.	Wm. Penn Crop Grower.	7.85	5.50	2.33	2.50	1.00	1.00	11.18	9.00	10.18	8.00	1.12	0.82	3.28
Rasin Monumental Fert. Co., Balto.	Bone and Potash.	12.05	9.00	2.69	3.00	2.29	1.00	15.03	13.00	14.74	12.00	...	3.75	1.00
Rasin Monumental Fert. Co., Balto.	Dissolved Bone.	7.10	7.30	3.20	2.50	1.39	1.00	11.69	11.00	10.30	10.00	2.45	1.64	...

23.25 19.50 3.75

TABLE II.—Continued.

NAME AND ADDRESS OF MANUFACTURER.	NAME OF BRAND.	Soluble Phosphate Acid in Official Sample.	Revered Phosphate Acid in Official Sample.	Tetra-Phosphate Acid in Official Sample.	Avaliable Phosphate Acid in Official Sample.	Guanilate Phosphate Acid in Official Sample.	Nitrogen in Official Sample.	Potash in Official Sample.	Potash Guaranteed.	Avaliable Phosphate Acid.	Guanilate Phosphate Acid.	Nitrogen in Official Sample.	Potash in Official Sample.	Potash Guaranteed.	Difference between Value at Satisfactory Grade.	Difference between Value at Grade.				
Rasin Monumental Fert. Co., Baltz.	Monumental Acid Phosphate..	12.55	11.50	3.26	2.50	0.37	1.00	16.18	15.00	15.81	14.00	...	...	...	18.25	16.75	1.50
Rasin Monumental Fert. Co., Baltz.	Arundel Complete	7.80	5.50	2.00	2.50	0.92	1.00	10.72	9.00	9.80	8.00	2.00	1.64	2.75	12.00	24.75	20.50	4.25		
Rasin Monumental Fert. Co., Baltz.	Empire Guano.....	8.24	5.00	1.52	3.0	0.59	1.00	10.35	9.00	9.76	8.00	2.65	2.06	2.46	1.50	26.75	21.50	5.25		
Rasin Monumental Fert. Co., Baltz.	Acid Phos., or Dis. S. C. Bone.	10.99	11.50	4.57	2.50	0.36	1.00	16.22	15.00	15.86	14.00	...	...	...	18.25	16.75	1.50
Baltimore Fert. Co., Frederick, Md.	Dissol'd Bone Superphosphate	11.91	...	2.86	....	3.17	2.00	17.94	16.00	14.77	14.00	...	...	...	18.00	17.00	1.00
Ramsburg Fert. Co., Frederick, Md.	Excelsior Plant Food	6.28	7.00	3.86	2.00	3.84	2.00	12.98	11.00	10.14	9.00	2.47	1.80	2.48	2.00	27.25	19.50	7.75		
Reese, John S., & Co., Baltimore, Md.	Half and Half	0.92	4.00	8.47	4.00	1.55	1.00	10.94	9.00	9.39	8.00	1.16	0.82	1.59	1.00	19.50	15.75	3.75		
Reese, John S., & Co., Baltimore, Md.	Elm Phosphate	13.62	12.00	4.49	2.00	1.18	1.00	19.29	15.00	18.11	14.00	...	...	...	20.75	16.75	4.00
Reese, John S., & Co., Baltimore, Md.	Reese's Dissolved Phosphate..	11.77	11.00	3.90	3.00	1.57	2.00	17.21	16.00	15.67	14.00	...	...	...	18.50	17.00	1.50
Robinson, Isaac, Baltimore, Md. .	High Grade Soluble Phosphate	11.00	...	3.18	....	2.17	....	16.35	....	14.18	....	...	...	...	17.25	....	....	
Robinson, Isaac, Baltimore, Md. ..	Cyclone Phosphate.....	7.74	...	2.63	....	1.57	...	12.84	...	11.27	....	...	...	...	14.25	....	....	
Sheldon & Co., Baltimore, Md.	Dissolved Bone.....	9.26	5.00	3.45	5.00	0.63	1.00	13.34	11.00	12.71	10.00	...	...	...	15.25	12.75	2.50
Sheldon & Co., Baltimore, Md.	Sheldon's Guano	3.88	3.50	3.25	3.50	1.70	1.00	8.83	8.00	7.13	7.00	1.66	1.65	3.54	1.00	32.00	18.00	4.00		
Sheldon & Co., Baltimore, Md.	Pure Bone Meal	22.58	22.00	...	4.25	2.70	...	31.75	26.00	5.75
Singluff & Co., Baltimore, Md.	Ammoniated Bone	8.24	7.00	1.96	2.00	3.25	1.00	13.45	10.00	9.00	2.12	0.54	2.5	2.50	28.25	23.75	4.50			
Singluff & Co., Baltimore, Md.	Magic Guano.....	9.10	7.00	2.36	2.00	3.26	1.00	14.62	10.00	11.36	9.00	1.18	0.82	3.05	2.00	24.00	18.00	6.00		
Singluff & Co., Baltimore, Md.	Dissolved South Carolina	10.75	11.00	3.66	3.00	2.39	1.00	16.80	15.00	14.44	14.00	...	...	...	17.50	16.75	0.75

TABLE II.—Continued.

NAME AND ADDRESS OF MANUFACTURER.	NAME OF BRAND.	SOLUBLE PHOSPHORIC ACID IN OFFICIAL SAMPLE.										TOTAL PHOSPHORIC ACID IN GUARANTEED SAMPLE.										
		SOLUBLE PHOSPHORIC ACID GUARANTEED					REVERSED PHOSPHORIC ACID IN OFFICIAL SAMPLE					INSOLUBLE PHOSPHORIC ACID GUARANTEED					TOTAL PHOSPHORIC ACID IN OFFICIAL SAMPLE					
Slingluff & Co., Baltimore, Md.	Bone and Potash.	8.67	8.00	4.23	3.19	1.91	16.09	11.00	12.90	10.00	...	...	...	...	...	...	...	...	...	...	...
Smith, Emory J., Columbus, O.	Acid Phosphate	6.69	...	2.13	...	4.16	1.00	13.98	10.00	9.82	9.00	13.50	12.00	1.50
Smith, Emory J., Columbus, O.	Acidulated Bone	17.53	13.00	1.27	0.41	18.00	17.25	0.75
Smith, Emory J., Columbus, O.	Ammoniated Bone and Potash	3.17	...	4.77	...	9.65	1.00	17.59	9.00	7.94	8.00	1.46	0.82	3.80	1.00	24.25	15.75	8.50	...	...	...
Southern Fertilizer Co., York, Pa.	"Ox Brand" Pure Grout'd Bone	20.39	18.30	3.75	3.20	28.75	25.50	3.25
Southern Fertilizer Co., York, Pa.	"Ox Brand" Diss. Bone Phos.	10.09	12.00	4.52	2.00	1.28	1.00	15.89	15.00	14.61	14.00	17.25	16.75	0.50
Southern Fertilizer Co., York, Pa.	"Ox Brand" Farmer's Choice	6.91	6.00	2.52	3.00	1.78	1.00	11.21	10.00	9.43	9.00	1.03	0.82	2.61	2.00	20.50	18.00	2.50	...	...	...
Southern Fertilizer Co., York, Pa.	"Ox Brand" Gen'l Crop Grow'r	3.63	5.50	5.06	2.50	1.24	1.01	9.93	9.00	8.69	8.00	1.04	0.41	2.65	2.00	19.75	15.50	4.25	...	...	...
Southern Fertilizer Co., York, Pa.	"Ox Brand" Soln. Bone & Pot.	7.85	9.00	3.87	2.00	1.45	1.00	13.20	12.00	11.75	11.00	2.42	2.00	18.00
Susquehanna Fert. Co., Balto, Md.	Dissolved S. C. Bone	14.02	2.41	0.93	2.00	17.36	16.00	16.42	14.00	19.00	17.00	2.00
Susquehanna Fert. Co., Balto, Md.	XXV Phosphate	4.70	4.39	...	...	2.21	2.00	11.30	10.00	9.09	8.00	1.16	1.00	2.76	1.00	21.00	16.75	4.25	...	...	...
Swift & Co., Chicago, Illinois	Swift's Superphosphate	6.98	5.00	3.30	3.00	2.64	4.00	12.94	12.00	10.28	8.00	3.00	2.50	2.72	2.00	29.75	22.00	7.75	...	...	...
Swift & Co., Chicago, Illinois	Swift's Ground Steamed Bone	...	...	...	...	26.56	25.00	...	...	2.59	2.50	...	...	...	...	...	...	...	28.25	27.00	1.25
Swift & Co., Chicago, Illinois	Swift's Raw Bone Meal	...	...	...	...	23.38	23.00	...	...	4.07	3.75	...	...	...	...	...	...	...	31.75	30.50	1.25
Thomas, I. P., & Sons Co., Phila., Pa.	S. C. Phosphate	11.51	...	3.14	...	1.88	2.00	16.53	16.00	14.65	14.00	...	...	...	...	...	...	...	17.50	17.00	0.50
Thomas, I. P., & Sons Co., Phila., Pa.	Improved Superphosphate	9.43	...	2.12	...	0.54	2.00	12.09	12.00	11.55	10.00	1.00	0.82	1.83	1.00	21.25	18.00	3.25	...	...	...
Thomas, I. P., & Sons Co., Phila., Pa.	Alkaline Bone	5.86	...	5.21	...	2.41	...	13.48	...	11.07	10.00	...	...	3.34	2.00	19.00	15.50	3.50	...	...	...

Differences between Values
Validation of Official Sample.

TABLE II.—*Continued.*

TABLE II.—*Continued.*

Table II contains the analyses and valuations of all brands of commercial fertilizers that have been registered in this State during the year 1899. It also contains the manufacturer's minimum guaranteed analyses and the station's valuations calculated from these guaranteed analyses. All valuations are based upon the analyses and the following prices of materials:

IN MIXED GOODS.

Available Phosphoric Acid.....	4c per pound
Insoluble Phosphoric Acid.....	1c per pound
Potash	6c per pound
Nitrogen.....	17c per pound

IN BONES.

Phosphoric Acid	2½c per pound
Nitrogen.....	15 c per pound

Add, in all cases \$2.50 for freight and add 20% of money invested, including freight, to cover agents' commission. This gives the relative commercial value per ton.

It should be distinctly understood, as has been clearly pointed out, as often as the subject of valuations has ever been mentioned by us that these valuations are purely relative. As relative values they are perfectly just, all being calculated on the same basis. As actual values they are as near right as the best information we can obtain will enable us to make them. They are the prices at which we think farmers should be able to purchase the fertilizers from the agents. No one is under any obligations whatever to be governed by them. They are published and printed on the tags for the sole purpose of protecting purchasers against exorbitant charges.

Almost without exception the official samples are "up to the guarantee"; that is, the sample submitted by the manufacturer is as good as he guarantees, and there is no reason why it should be otherwise. A far more difficult matter to understand is why so many manufacturers insist upon placing their minimum guaranteed analysis so far below the composition of their official sample. In extreme cases of this kind we always regard the official sample with more or less suspicion and take special

pains to find samples of such brands on sale, but it should not be understood from this that our suspicions are always verified. On the contrary there are quite a number of firms whose fertilizers have been receiving special attention for years, and yet they rarely fail to come right up to the official sample. So we say it is difficult to understand why they place their guarantees so low.

As a matter of fact our law attaches very little importance to the guaranteed analysis. Everything turns on the composition of the official sample, which must fairly represent the goods, and the manufacturer is compelled to state under oath that *it is* a fair sample of the goods he will ship into the State. This the Station has insisted upon year after year and in order to show more clearly just who the manufacturers are who may be depended upon to ship as good fertilizers into the State as the samples submitted to us, we have arranged in parallel columns, (Table III,) the analyses and valuations of the official samples and the samples of the same brands found on sale in the State by the Inspectors.

TABLE III.
Analysis of Commercial Fertilizers—1899.

NAME AND ADDRESS OF MANUFACTURER.	NAME OF BRAND.	Agents Number.	Soluble Phosphate Acid in in Inspectors Sample.	Reverted Phosphate Acid in Official Sample.	Inositol Phosphate Acid in Official Sample.	Total Phosphate Acid in Inspectors Sample.	Inositol Phosphate Acid in Official Sample.	Total Phosphate Acid in Inspectors Sample.	Available Phosphate Acid in Official Sample.	Inspec-	Nitro-	Nitro-	Potash in Metal Sample.	Vibration of Metal Sample.	Validation of Metal Sample.	Validation of Sample.	Difference between Value.	
Allison & Addison, Richmond, Va.	Star Brand Guano.....	32	6.32	6.83	1.96	1.84	2.90	2.84	11.18	11.51	8.28	8.67	2.06	1.56	2.27	1.50	23.25	20.50
Armour Fert. Co., Chicago, Ill.	Grain Grower	6	4.99	6.08	4.23	4.53	3.19	4.60	12.41	15.27	9.22	10.61	2.38	3.14	2.77	2.04	26.00	30.00
Armour Fert. Co., Chicago, Ill.	Grain Grower	9	... 5.37	... 5.11	... 1.94	... 1.94	... 1.94	... 1.94	... 12.42	... 10.48	... 1.89	... 2.10	1.9	2.41	2.45	25.75	23.00	
Baugh & Sons Co., Baltimore, Md.	Animal Bone & Potash Comp'd	20	6.15	5.39	4.51	3.38	1.85	1.71	12.51	10.48	10.66	8.77	2.10	1.9	2.41	2.45	25.75	23.00
Baugh & Sons Co., Baltimore, Md.	Animal Bone & Potash Comp'd	16.5	... 5.63	... 5.82	... 5.82	... 5.82	... 5.82	... 5.82	... 2.14	... 2.14	... 10.62	... 8.48	... 1.75	... 1.75	... 1.75	... 2.59	25.75	22.50
Baugh & Sons Co., Baltimore, Md.	Animal Bone & Potash Comp'd	27	... 5.82	... 5.82	... 5.82	... 5.82	... 5.82	... 5.82	... 2.19	... 2.19	... 10.36	... 8.17	... 2.00	... 2.00	... 2.00	... 3.48	25.75	21.75
Baugh & Sons Co., Baltimore, Md.	Double Eagle Phosphate.....	37	6.28	5.19	3.29	4.28	1.64	2.33	11.21	11.80	9.57	9.47	2.55	2.38	1.27	0.98	24.75	23.75
Baugh & Sons Co., Baltimore, Md.	Double Eagle Phosphate.....	37	... 5.80	... 5.80	... 5.80	... 5.80	... 5.80	... 5.80	... 3.32	... 2.52	... 11.64	... 9.12	... 2.60	... 2.60	... 2.60	... 1.27	24.75	25.00
Baugh & Sons Co., Baltimore, Md.	Double Eagle Phosphate.....	27	... 5.40	... 5.40	... 5.40	... 5.40	... 5.40	... 5.40	... 2.30	... 2.30	... 11.83	... 9.53	... 2.30	... 2.30	... 2.30	... 1.64	24.75	24.50
Baugh & Sons Co., Baltimore, Md.	Double Eagle Phosphate	20	... 6.10	... 6.10	... 6.10	... 6.10	... 6.10	... 6.10	... 3.42	... 3.42	... 2.17	... 11.69	... 9.52	... 2.80	... 2.80	... 0.83	24.75	25.25
Baugh & Sons Co., Baltimore, Md.	Soluble Alkaline Superphosph	37	10.11	2.63	2.89	7.69	0.97	2.96	13.97	12.28	13.00	10.02	... 1.27	1.27	1.27	1.27	23.75	20.50
Baugh & Sons Co., Baltimore, Md.	General Crop Grower.....	37	7.97	5.92	2.47	8.16	1.27	1.37	11.71	10.45	10.44	9.08	1.36	1.44	1.67	1.48	21.25	20.25
Baugh & Sons Co., Baltimore, Md.	General Crop Grower	16.5	... 4.76	... 4.76	... 4.76	... 4.76	... 4.76	... 4.76	... 3.31	... 3.31	... 1.32	... 9.39	... 8.07	... 1.20	... 1.20	... 2.19	21.25	19.25
Baugh & Sons Co., Baltimore, Md.	General Crop Grower	37	... 6.65	... 6.65	... 6.65	... 6.65	... 6.65	... 6.65	... 2.76	... 2.76	... 1.23	... 10.64	... 9.41	... 1.29	... 1.29	... 1.63	21.25	20.00
Baugh & Sons Co., Baltimore, Md.	General Crop Grower	27	... 7.00	... 7.00	... 7.00	... 7.00	... 7.00	... 7.00	... 3.54	... 3.54	... 0.97	... 11.51	... 10.54	... 1.53	... 1.53	... 1.53	21.25	22.00
Baugh & Sons Co., Baltimore, Md.	General Crop Grower	27	... 6.79	... 6.79	... 6.79	... 6.79	... 6.79	... 6.79	... 2.73	... 2.73	... 1.30	... 10.82	... 9.52	... 1.28	... 1.28	... 1.45	21.25	19.75

TABLE III.—Continued.

NAME AND ADDRESS OF MANUFACTURER,	NAME OF BRAND,	Agents Number.	Soluible Phosphate Acid in Ommercial Sample.														
			Reverted Phosphate Acid in Ommercial Sample.			Soluible Phosphate Acid in Inspecetor's Sample.			Reverted Phosphate Acid in Ommercial Sample.			Soluible Phosphate Acid in Inspecetor's Sample.					
Baugh & Sons Co., Baltimore, Md...	Warranted Pure Bone Meal....	18															
Baugh & Sons Co., Baltimore, Md...	Warranted Pure Bone Meal...	27															
Baugh & Sons Co., Baltimore, Md...	Warranted Pure Bone Meal...	30															
Baugh & Sons Co., Baltimore, Md...	H. G. Acid Phos. or Dis.S.C.R.	17.13.23	9.75	2.37	4.86	1.27	2.54	16.87	17.14	15.60	14.61						
Baugh & Sons Co., Baltimore, Md...	H. G. Acid Phos. or Dis.S.C.R.	37	10.63	... 3.45	2.17	16.35	...	14.18	...	18.25	17.75	-0.50					
Baugh & Sons Co., Baltimore, Md...	H. G. Acid Phos. or Dis.S.C.R.	27	11.64	5.08	0.70	17.42	...	16.72	...	18.25	17.25	-1.00					
Baugh & Sons Co., Baltimore, Md...	H. G. Acid Phos. or Dis.S.C.R.	27	9.35	4.88	1.89	16.12	...	14.33	...	18.25	17.25	-1.00					
Baltimore Guano Co., Baltimore, Md B. G. Ammoniated Bone	38	5.73	5.05	3.00	1.97	2.09	10.08	10.14	8.11	8.05	1.27	1.41	2.37	20.00	20.50		
Baltimore Guano Co., Baltimore, Md B. G. Ammoniated Bone	34	4.06	4.20	1.96	10.22	...	8.26	...	1.26	...	3.58	...	17.00	-3.00			
Baltimore Guano Co., Baltimore, Md B. G. Ammoniated Bone	34	3.45	4.38	1.92	...	9.75	...	7.83	...	1.20	...	3.97	...	21.75			
Baltimore Guano Co., Baltimore, Md B. G. Ammoniated Bone	34	2.17	1.05	8.88	8.69	2.03	1.98	13.08	11.72	11.05	9.74	...	2.66	2.21	18.00	16.00	
Baltimore Guano Co., Baltimore, Md Defiance Bone.....	34	11.16	10.17	2.99	3.41	2.25	2.78	16.40	16.36	14.15	13.58	17.25	16.75	
Baltimore Guano Co., Baltimore, Md Farmer's Dissolved Bone ...	34	1.22	1.73	5.91	1.10	1.43	11.86	8.56	10.76	7.13	0.14	3.06	1.99	18.00	13.75	-4.25	
Penniman's Exce'r Fert. F. M.	46	9.03	21.75	22.50	
Abattoir Bone Dust	30.5	6.00	5.70	4.56	2.28	1.30	13.85	11.85	11.57	10.55	...	2.92	2.51	18.75	18.25	-0.50	
Bradley Fertilizer Co., New York...	24	5.87	6.00	5.70	4.56	2.28	1.30	13.85	11.85	11.57	10.55	17.00	15.00	-2.00
Bradley Fertilizer Co., New York...	24	11.02	3.42	3.21	8.50	1.74	1.97	15.97	13.89	14.23	11.93	17.00	15.75	-1.25
Bradley Fertilizer Co., New York...	48	10.03	...	2.87	1.62	1.52	...	12.90	...	14.18	17.00	17.00	
Bradley Fertilizer Co., New York...	24	9.59	4.59	1.36	15.54	...	14.18	17.00	17.00	

NAME AND ADDRESS OF MANUFACTURER,	NAME OF BRAND,	Agents Number.	Total Phosphate Acid in Ommercial Sample.															
			Available Phosphate Acid in Ommercial Sample.			Nitrogen in Ommercial Sample.			Potash in Ommercial Sample.			Water in Ommercial Sample.						
Baugh & Sons Co., Baltimore, Md...	Warranted Pure Bone Meal....	21.88	21.82															
Baugh & Sons Co., Baltimore, Md...	Warranted Pure Bone Meal...	21	21.36	...	22.26	...	4.27	...	4.27	...	30.00	31.50	X1.50	X1.75				
Baugh & Sons Co., Baltimore, Md...	Warranted Pure Bone Meal...	20	...	...	...	...	...	...	...	...	30.00	31.75		
Baugh & Sons Co., Baltimore, Md...	H. G. Acid Phos. or Dis.S.C.R.	17.13.23	9.75	2.37	4.86	1.27	2.54	16.87	17.14	15.60	14.61							
Baugh & Sons Co., Baltimore, Md...	H. G. Acid Phos. or Dis.S.C.R.	37	10.63	3.45	2.17	16.35	...	14.18	...	18.25	17.25	-1.00						
Baugh & Sons Co., Baltimore, Md...	H. G. Acid Phos. or Dis.S.C.R.	27	11.64	5.08	0.70	17.42	...	16.72	...	18.25	18.25	0.00						
Baugh & Sons Co., Baltimore, Md...	H. G. Acid Phos. or Dis.S.C.R.	27	9.35	4.88	1.89	16.12	...	14.33	...	18.25	17.25	-1.00						
Baltimore Guano Co., Baltimore, Md B. G. Ammoniated Bone	38	5.73	5.05	3.00	1.97	2.09	10.08	10.14	8.11	8.05	1.27	1.41	2.37	20.00	20.50			
Baltimore Guano Co., Baltimore, Md B. G. Ammoniated Bone	34	4.06	4.20	1.96	10.22	...	8.26	...	1.26	...	3.58	...	17.00	-3.00				
Baltimore Guano Co., Baltimore, Md B. G. Ammoniated Bone	34	3.45	4.38	1.92	...	9.75	...	7.83	...	1.20	...	3.97	...	21.75				
Baltimore Guano Co., Baltimore, Md B. G. Ammoniated Bone	34	2.17	1.05	8.88	8.69	2.03	1.98	13.08	11.72	11.05	9.74	...	2.66	2.21	18.00	16.00		
Baltimore Guano Co., Baltimore, Md Farmer's Dissolved Bone ...	34	11.16	10.17	2.99	3.41	2.25	2.78	16.40	16.36	14.15	13.58	17.25	16.75	-0.50	
Baltimore Pulverizing Co.,.....	Penniman's Exce'r Fert. F. M.	46	9.03	1.22	1.73	5.91	1.10	1.43	11.86	8.56	10.76	7.13	0.14	3.06	1.99	18.00	13.75	-4.25
Bradley Fertilizer Co., New York...	Abattoir Bone Dust	30.5	6.00	5.70	4.56	2.28	1.30	13.85	11.85	11.57	10.55	...	2.01	2.35	...	21.75	22.50	X0.75
Bradley Fertilizer Co., New York...	Alkaline Bone	24	5.87	6.00	5.70	4.56	2.28	1.30	13.85	11.85	11.57	10.55	...	2.92	2.51	18.75	18.25	-0.50
Bradley Fertilizer Co., New York...	Dissolved Bone	24	11.02	3.42	3.21	8.50	1.74	1.97	15.97	13.89	14.23	11.93	...	17.00	15.00	-2.00		
Bradley Fertilizer Co., New York...	Dissolved Bone	48	10.03	...	2.87	1.62	1.52	...	12.90	...	14.18	17.00	15.75	-1.25
Bradley Fertilizer Co., New York...	Dissolved Bone	24	9.59	4.59	1.36	15.54	...	14.18	17.00	17.00	0.00	

NAME AND ADDRESS OF MANUFACTURER, NAME OF BRAND.

Differences between Values.

TABLE III.—*Continued*

NAME AND ADDRESS OF MANUFACTURER.	NAME OF BRAND.	Agents Number.		Soluble Phosphate Acid in Office Sample.	Soluble Phosphate Acid in Dissolved Bone Phosphate.	Revereted Phosphate Acid in Inspectors Sample.	Soluble Phosphate Acid in Office Sample.	Insoluble Phosphate Acid in Inspectors Sample.	Insoluble Phosphate Acid in Office Sample.	Total Phosphate Acid in Office Sample.	Total Phosphate Acid in Inspectors Sample.	Insoluble Phosphate Acid in Inspectors Sample.	Total Phosphate Acid in Office Sample.	Available Phosphate Acid in Inspectors Sample.	Available Phosphate Acid in Office Sample.	Nitrogen in Office Sample.	Nitrogen in Inspectors Sample.	Potash in Inspectors Sample.	Potash in Office Sample.	Ple. Valuation of Office Sample.	Ple. Valuation of Inspectors Sample.	Sample of Inspectors Sample.	Differences Between Values.	
		Agents Number.	Agents Number.																					
Bradley Fertilizer Co., New York...	Acid Phosphate	24	7.69	6.45	3.06	5.08	1.80	1.56	12.55	13.09	10.75	11.53	.....	.....	.....	13.75	14.50	10.75	13.75	0.00	13.75	13.75	0.00
Bradley Fertilizer Co., New York...	Acid Phosphate	24	..	6.42	4.12	..	1.82	...	12.36	..	10.54	25.50	28.50	13.00	13.75	-1.00	13.75	13.75	-1.00
Bowker Fertilizer Co., Boston, Mass	Bone Meal	42	....	....	....	....	....	....	25.45	24.27	....	....	1.98	3.00	....	....	....	16.00	15.00	1.00	16.00	15.75	-0.25
Bowker Fertilizer Co., Boston, Mass	Dissolved Bone Phosphate	42	8.41	7.04	4.73	1.91	1.70	1.43	14.87	13.41	13.70	11.98	....	....	....	....	....	16.00	15.75	-0.25	16.00	15.75	-0.25
Bowker Fertilizer Co., Boston, Mass	Dissolved Bone Phosphate	42	..	7.68	..	4.91	..	1.93	...	14.52	..	12.59	....	....	....	....	18.00	17.25	-0.75	18.00	17.25	-0.75	
Bowker Fertilizer Co., Boston, Mass	Harvest Bone	42	8.44	6.55	3.00	4.10	1.69	1.85	13.18	12.50	11.48	10.65	0.65	0.75	1.32	1.36	19.00	18.75	-0.25	18.00	17.25	-0.75		
Chemical Co. of Canton, Balti, Md.	Pure Dissolved S. C. Bone	F	12.72	10.14	2.68	3.96	0.59	2.47	15.99	16.57	15.40	14.10	....	....	....	....	....	18.00	17.25	-0.75	18.00	17.25	-0.75
Chemical Co. of Canton, Balti, Md.	Pure Dissolved S. C. Bon	20	..	10.78	....	4.06	....	1.69	....	16.44	....	14.84	....	....	....	....	18.00	17.25	-0.75	18.00	17.25	-0.75	
Chemical Co. of Canton, Balti, Md.	Pure Dissolved S. C. Bone	43	..	9.01	....	3.82	....	1.69	....	15.52	....	12.83	....	....	....	....	18.00	16.00	-2.00	18.00	16.00	-2.00	
Chemical Co. of Canton, Balti, Md.	Soluble Bone and Potash...	43	8.56	2.60	2.79	6.90	0.61	2.35	11.96	12.05	11.35	9.50	....	3.45	2.36	19.00	16.25	-2.75	2.26	19.00	16.25	-2.75	
Chemical Co. of Canton, Balti, Md.	Soluble Bone and Potash...	42	..	1.98	7.68	..	2.28	11.94	9.66	2.26	19.00	16.25	-2.75	2.26	19.00	16.25	-2.75
Chemical Co. of Canton, Balti, Md.	Baker's Sp.Wht,C'n &Gr's M.	43	4.72	5.37	4.31	3.07	2.25	1.59	11.28	10.03	9.03	8.44	1.13	1.05	4.25	3.00	23.00	20.25	-2.75	2.26	19.00	16.25	-2.75	
Chemical Co. of Canton, Balti, Md.	Baker's Sp.Wht,C'n &Gr's M.	2	..	5.12	....	3.76	....	2.90	....	11.78	....	8.88	....	1.02	....	3.11	23.00	21.00	-2.00	3.11	23.00	21.00	-2.00
Chemical Co. of Canton, Balti, Md.	Baker's Standard Grou'd Bone	20	..	5.67	....	2.90	....	2.80	....	11.37	....	8.57	....	0.98	....	2.63	23.00	19.75	-3.25	2.63	23.00	19.75	-3.25
Chemical Co. of Canton, Balti, Md.	Harrow Brand Crop Grower...	F	..	..	..	..	..	..	..	20.48	18.50	....	3.49	3.42	....	....	26.00	26.50	-2.50	26.00	26.50	-2.50	
Chemical Co. of Canton, Balti, Md.	Harrow Brand Crop Grower...	43	4.04	3.05	4.23	5.44	2.30	2.30	10.57	10.77	8.27	8.47	1.17	1.05	2.19	1.44	19.50	18.25	-0.75	19.50	18.25	-0.75		
Chemical Co. of Canton, Balti, Md.	Harrow Brand Crop Grower...	42	..	4.89	....	3.06	....	2.49	....	10.44	....	7.95	....	0.90	....	1.68	1.95	1.75	-2.00	1.68	1.95	-2.00	

TABLE III.—*Continued.*

NAME AND ADDRESS OF MANUFACTURER.	NAME OF BRAND	Agents Number.										Agents Number.	NAME OF BRAND	Agents Number.											
		Soluble Phosphoric Acid in Omeical Sample.	Revereted Phosphoric Acid in Omeical Sample.	Insoluble Phosphoric Acid in Omeical Sample.	Total Phosphoric Acid in Omeical Sample.	Insoluble Phosphoric Acid in Omeical Sample.	Available Phosphoric Acid in Omeical Sample.	Inspec-tors Sample.	Total Phosphoric Acid in Omeical Sample.	Insoluble Phosphoric Acid in Omeical Sample.	Available Phosphoric Acid in Omeical Sample.			Soluble Phosphoric Acid in Omeical Sample.	Revereted Phosphoric Acid in Omeical Sample.	Insoluble Phosphoric Acid in Omeical Sample.	Total Phosphoric Acid in Omeical Sample.	Insoluble Phosphoric Acid in Omeical Sample.	Available Phosphoric Acid in Omeical Sample.	Inspec-tors Sample.	Total Phosphoric Acid in Omeical Sample.	Insoluble Phosphoric Acid in Omeical Sample.	Available Phosphoric Acid in Omeical Sample.	Inspec-tors Sample.	
Crocker Fert. & Chem. Co., Buffalo.	Universal Grain Grower.	43	7.00	3.45	2.43	4.14	2.49	1.41	11.92	9.00	9.43	7.59	1.58	1.53	3.78	3.44	24.50	22.00	-2.50						
Crocker Fert. & Chem. Co., Buffalo.	Universal Grain Grower.	15	... 3.65	... 4.31	... 2.15	... 10.11	... 7.96	... 1.43	... 1.43	... 1.43	... 1.43	... 1.43	... 1.43	... 1.43	... 1.43	... 4.34	24.50	23.25	-1.25						
Crocker Fert. & Chem. Co., Buffalo.	General Crop Phosphate.	3	6.73	3.04	2.35	4.06	2.75	1.92	11.83	9.02	9.08	7.10	1.50	1.18	2.24	1.16	21.75	16.75	-5.00						
Crocker Fert. & Chem. Co., Buffalo.	General Crop Phosphate.	15	... 3.33	... 3.81	... 1.34	... 8.48	... 7.14	... 1.06	... 1.06	... 1.06	... 1.06	... 1.06	... 1.06	... 1.06	... 1.06	... 1.83	21.75	17.25	-4.50						
Crocker Fert. & Chem. Co., Buffalo.	Potato, Hop & Tobac. Phosphate.	26	9.40	6.61	1.67	3.07	0.35	2.12	11.42	11.80	11.07	9.68	2.84	2.46	4.34	4.84	31.50	30.00	-1.50						
Crocker Fert. & Chem. Co., Buffalo.	Erie Phosphate.	43	10.09	7.74	2.64	5.45	2.33	1.50	15.06	14.69	12.73	13.19	... 1.00	... 1.00	... 1.00	... 1.00	... 15.75	16.00	X 0.25						
Cleveland Dryer Co., Cleveland, O.	Horsehead Phosphate.	F	6.46	5.37	3.48	2.70	0.80	3.99	10.71	12.06	9.91	8.07	... 1.00	... 1.00	... 1.00	... 1.00	... 12.75	11.75	-1.00						
Cleveland Dryer Co., Cleveland, O.	Horsehead Phosphate.	47	... 6.35	... 2.14	... 2.51	... 11.00	... 11.00	... 11.00	... 11.00	... 11.00	... 8.49	... 8.49	... 8.49	... 8.49	... 8.49	... 12.75	11.75	-1.00							
Cleveland Dryer Co., Cleveland, O.	Horsehead Phosphate.	6	... 6.00	... 4.99	... 1.39	... 12.38	... 12.38	... 10.99	... 10.99	... 10.99	... 10.99	... 10.99	... 10.99	... 10.99	... 10.99	... 12.75	14.00	X 1.25							
Cleveland Dryer Co., Cleveland, O.	Horsehead Phosphate.	F	... 6.46	... 4.10	... 3	04	... 13.60	... 13.60	... 10.56	... 10.56	... 10.56	... 10.56	... 10.56	... 10.56	... 10.56	... 12.75	14.00	X 1.25							
Cleveland Dryer Co., Cleveland, O.	Horsehead Phosphate.	F	... 5.46	... 7.21	... 2.11	... 14.78	... 14.78	... 12.67	... 12.67	... 12.67	... 12.67	... 12.67	... 12.67	... 12.67	... 12.67	... 12.75	15.75	X 3.00							
Cleveland Dryer Co., Cleveland, O.	XXXX Phosphate.	47	8.96	10.45	4.35	4.69	0.74	0.77	14.06	15.91	13.31	15.14	... 1.00	... 1.00	... 1.00	... 1.00	... 16.00	17.75	X 1.75						
Cleveland Dryer Co., Cleveland, O.	XXXX Phosphate.	31	... 10.25	... 3.83	... 1.37	... 15.45	... 15.45	... 14.08	... 14.08	... 14.08	... 14.08	... 14.08	... 14.08	... 14.08	... 14.08	... 16.00	17.00	X 1.00							
Cleveland Dryer Co., Cleveland, O.	XXXX Phosphate.	6	... 8.08	... 5.35	... 2.39	... 15.74	... 15.74	... 13.35	... 13.35	... 13.35	... 13.35	... 13.35	... 13.35	... 13.35	... 13.35	... 16.00	16.50	X 0.50							
Cleveland Dryer Co., Cleveland, O.	Potato & General Crop Fert.	47	5.76	7.38	3.42	2.71	2.51	2.61	11.71	12.70	9.20	10.09	1.05	1.05	6.30	5.51	25.75	25.50	-0.25						
Cleveland Dryer Co., Cleveland, O.	Potato & General Crop Fert.	10	... 7.20	... 3.04	... 2.30	... 12.54	... 12.54	... 10.24	... 10.24	... 10.24	... 10.24	... 10.24	... 10.24	... 10.24	... 10.24	... 1.34	... 6.00	25.75	27.50	X 1.75					
Cleveland Dryer Co., Cleveland, O.	Potato & General Crop Fert.	47	... 6.05	... 3.05	... 2.70	... 12.40	... 12.40	... 9.70	... 9.70	... 9.70	... 9.70	... 9.70	... 9.70	... 9.70	... 9.70	... 6.00	25.75	27.25	X 1.50						

TABLE III.—Continued.

NAME AND ADDRESS OF MANUFACTURER.	NAME OF BRAND.	Agents Number.	Commercial Fertilizers																
			SOLUBLE PHOSPHORIC ACID IN OMICRAL SAMPLE.					OMICRAL SAMPLE.											
Cleveland Dryer Co., Cleveland, O.	Ohio Seed Maker with Potash.	25	... 3.56	... 4.72	..	3.95	...	12.23	...	8.26	...	1.52	...	2.57	...	22.00	...		
Cleveland Dryer Co., Cleveland, O.	Horsehead Phos. and Potash..	31	5.28	6.40	2.98	2.99	0.70	1.66	8.96	11.05	8.26	9.39	...	2.14	1.23	14.25	14.25	0.00	
Cleveland Dryer Co., Cleveland, O.	Horsehead Phos. and Potash..	7	...	7.84	...	2.04	..	1.75	...	11.63	...	9.88	...	1.32	14.25	15.00	15.00	>0.75	
Cleveland Dryer Co., Cleveland, O.	Horsehead Phos. and Potash..	6	...	6.00	...	4.39	..	2.15	...	12.54	...	10.39	...	1.84	14.25	16.25	16.25	>2.00	
Cleveland Dryer Co., Cleveland, O.	Square Bone.....	47	3.15	...	9.68	...	5.78	...	18.61	20.44	12.83	...	2.08	2.17	...	21.75	23.25	>1.50	
Cleveland Dryer Co., Cleveland, O.	Square Bone	25	...	...	...	...	...	...	19.19	...	...	...	2.58	...	...	21.75	24.00	>2.25	
Cleveland Dryer Co., Cleveland, O.	Square Bone	6	...	...	...	...	...	...	20.72	...	...	...	2.14	...	...	21.75	23.25	>1.50	
Cleveland Dryer Co., Cleveland, O.	Phospho Bone	47	6.46	5.09	3.01	3.71	1.50	3.63	10.97	12.43	9.47	8.80	0.93	1.05	1.48	1.32	18.60	18.50	0.00
Cleveland Dryer Co., Cleveland, O.	Phospho Bone	31	...	5.08	...	4.25	...	3.48	...	12.81	...	9.33	...	1.02	...	1.21	18.60	18.75	>0.25
Cleveland Dryer Co., Cleveland, O.	Phospho Bone	20	...	6.65	...	3.64	...	2.76	...	13.05	...	10.39	...	1.01	...	1.44	18.50	19.75	>1.25
Cleveland Dryer Co., Cleveland, O.	Phospho Bone	47	...	6.87	...	3.79	...	2.53	...	13.19	...	10.66	...	0.93	...	1.64	18.50	20.00	>1.50
Derrick Fer. & Chem. Co., Balt. Md.	Imperial Compound.....	30	6.40	6.27	3.28	3.16	2.19	3.06	11.87	12.49	9.68	9.43	0.91	1.05	2.88	1.16	20.75	18.75	-2.00
Derrick Fer. & Chem. Co., Balt. Md.	Dissolved S. C. Bone.....	19	11.45	10.66	2.68	2.77	2.32	2.23	16.45	16.66	14.13	13.43	...	...	...	...	17.25	16.50	-0.75
Derrick Fer. & Chem. Co., Balt. Md.	Dissolved S. C. Bone.....	30	...	10.75	...	3.22	...	2.02	...	15.59	...	13.97	...	...	...	...	17.25	17.00	-0.25
Derrick Fer. & Chem. Co., Balt. Md.	Dissolved S. C. Bone.....	8	...	11.46	...	2.05	...	2.56	...	16.07	...	13.51	...	...	...	...	17.25	16.75	-0.50
Derrick Fer. & Chem. Co., Balt. Md.	Dissolved S. C. Bone.	20	...	11.26	...	2.88	...	2.17	...	16.31	...	14.14	...	...	...	...	17.25	17.25	0.00

TABLE III.—*Continued.*

NAME AND ADDRESS OF MANUFACTURER.	NAME OF BRAND.	Agents Number.									
		Soluble Phosphate Acid in Soltile Phosphate Acid in Reverted Phosphate Acid in Inspectors Sample.					Reverted Phosphate Acid in Omelet Sample.				
Deerrick Fer. & Chem. Co., Baltimore	Soluble Bone Phos. & Pot'l Fer	F 11.35	11.782	80.2	83.2	30	1.28	16.45	15.89	14.15	14.61
Deerrick Fer. & Chem. Co., Baltimore	Soluble Bone Phos. & Pot'l Fer	3	1.09	..	8.18	....	1.07	....	13.34	....	9.27
Deerrick, Louis F., Baltimore, Md. . X'tra Acid Phosphate,....	Dissolved Bone Mixture,....	28	2.32	1.11	7	79	8.08	2.01	4.25	12	12
Deerrick, Louis F., Baltimore, Md. . X'tra Acid Phosphate,....	Dissolved Bone Mixture,....	12	1.87	5.71	8.64	4.4	46.2	17.3	33	12	68
Great Eastern Fer. Co., Rutland, Vt.	Great Eastern Fer. Co., Rutland, Vt.	45	11.12	11.92	3.28	3.37	0.84	1.21	15.24	16.50	14.40
Great Eastern Fer. Co., Rutland, Vt.	Pure Bone,....	F	....	....	....	....	....	22.18	23.19	....	....
Great Eastern Fer. Co., Rutland, Vt.	Sohible Bone and Potash,....	39	8.07	8.42	3.48	3.55	1.64	0.64	13.19	12.60	11.55
Great Eastern Fer. Co., Rutland, Vt.	Sohible Bone and Potash,....	45	..	8.44	....	3.93	0.23	....	12.70	....	12.37
Great Eastern Fer. Co., Rutland, Vt.	English Wheat Grower,....	39	7.00	6.28	2.30	3.48	1.96	1.50	11.26	11.56	9.30
Great Eastern Fer. Co., Rutland, Vt.	English Wheat Grower,....	45	....	7.41	....	2.53	....	1.43	....	11.37	....
Great Eastern Fer. Co., Rutland, Vt.	Wheat Grower,....	11	....	6.40	....	2.86	....	1.45	....	10.41	....
Great Eastern Fer. Co., Rutland, Vt.	English Wheat Grower,....	28	....	6.55	....	2.45	....	1.87	....	10.87	....
Great Eastern Fer. Co., Rutland, Vt.	English Wheat Grower,....	41	....	7.01	....	1.94	....	1.57	....	10.52	....
Maryland Fert. & Mfg Co., Balt. Md'	Dissolved, S. C. Bone,....	17	12.17	11.63	2.50	3.97	0.67	1.16	15.34	16.76	14.67
Maryland Fert. & Mfg Co., Balt. Md'	Dissolved, S. C. Bone,....	17	12.25	11.82	2.50	3.97	0.67	1.16	15.34	16.76	14.67

TABLE III—*Continued.*

TABLE III.—Continued.

NAME AND ADDRESS OF MANUFACTURER.	NAME OF BRAND	Agents Number.	Soluble Phosphate Acid in Omeical Sample.													
			Revered Phosphate Acid in Inspector's Sample.				Soluble Phosphate Acid in Inspector's Sample.				Total Phosphate Acid in Omeical Sample.					
Old Dominion Guano Co., Norfolk, Va.	High Grade Bone Phos.	33 10.83	8.06	3	51	4.97	1.85	2.49	16.18	15.52	14.23	13.03	...	...	...
Old Dominion Guano Co., Norfolk, Va.	G. Alkaline Bone & Potash.	33 8.76	6.20	2	88	4.44	2.66	2.58	14.30	13.22	11.64	10.64	...	3.41	1.98	
Pacific Guano Co., New York.	A No. 1 Phosphate.	34 5.50	4.22	1	89	4.31	2.14	2.55	9.53	11.08	7.39	8.53	1	65	1.44	
Pacific Guano Co., New York.	Diss. Bone Phosphate of Lime	34 11.69	9.40	3	41	5.30	1	.78	1	52	15.88	16.32	14.10	14.70	...	
Piedm't-Mt. Airy Guano Co., Balto.	Piedt Dis. Bone Phos., P. G'ds	1 9.37	5.92	1	21	4.05	1.71	.80	11.75	11.77	10.58	9.97	...	1.40	1.11	
Piedm't-Mt. Airy Guano Co., Balto.	Piedt High Grade S. C. Bone.	16 11.71	10.78	2	74	2	53	1	30	1	85	15.65	15.16	14.45	13.31	...
Piedm't-Mt. Airy Guano Co., Balto.	Piedt Pure Raw Bone Mixture	16 5.82	4.48	3	53	3	30	1	79	2	89	11.14	11.67	9.35	8.78	1.78
Rasin Monumental Fert. Co., Balto.	Acid Phos. or Diss. S. C. Bone.	45.5 10.99	12.09	4	87	4.31	0.36	0.40	16.22	16.80	15.86	16.40	...	...	...
Slingluff & Co., Baltimore, Md.	Dissolved South Carolina	44 10.75	10.13	3	66	5.84	2.39	1	15	16.80	17.12	14.44	15.97	...	...	17.50
Slingluff & Co., Baltimore, Md.	Dissolved South Carolina	29	10.81	4.51	1	66	...	1	66	16.98	...	15.32	...	...	...	17.50
Slingluff & Co., Baltimore, Md.	Bone and Potash.	4 8.67	8.19	4	23	3.33	3.19	1	22	16.09	12.74	12.90	11.52	...	3.25	2.44
Slingluff & Co., Baltimore, Md.	Bone and Potash.	44	6.67	5.56	1	89	...	14.12	...	12.23	...	...	...	...	3.07	20.75
Slingluff & Co., Baltimore, Md.	Bone and Potash.	29	9.85	3	04	0	.96	...	13.85	...	12.89	...	...	...	3.21	20.75

Differences between Values.

Vaution of Inspector's Sample.	Vaulation of Omeical Sample.	Nitrogen in Inspector's Sample.	Nitrogen in Omeical Sample.	Avallable Phosphate Acid in Inspector's Sample.	Avallable Phosphate Acid in Omeical Sample.	Total Phosphate Acid in Inspector's Sample.	Total Phosphate Acid in Omeical Sample.	Insoluble Phosphate Acid in Inspector's Sample.	Insoluble Phosphate Acid in Omeical Sample.	Insoluble Phosphate Acid in Inspector's Sample.	Insoluble Phosphate Acid in Omeical Sample.	Revered Phosphate Acid in Inspector's Sample.	Revered Phosphate Acid in Omeical Sample.	Agents Number.
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TABLE III.—*Continued.*

NAME AND ADDRESS OF MANUFACTURER.	NAME OF BRAND	Agents Number.	Soluble Phosphoric Acid in Ometal Sample.	Soluble Phosphoric Acid in Reverted Bone Phosphate Sample.	Reverted Phosphate Acid in Ometal Sample.	Total Phosphate Acid in Ometal Sample.	Insoluble Phosphate Acid in Inspectors Sample.	Total Phosphate Acid in Ometal Sample.	Avaliable Phosphate Acid in Ometal Sample.	Total Phosphate Acid in Inspectors Sample.	Insoluble Phosphate Acid in Inspectors Sample.	Total Phosphate Acid in Ometal Sample.	Nitrogen in Ometal Sample.	Avaliable Phosphate Acid in Inspectors Sample.	Potash in Ometal Sample.	Difference between Value.			
Singluff & Co., Baltimore, Md.....	Magic Guano.....	29	9.10	9.68	2.36	3.45	3.26	1.54	14.62	14.67	11.36	13.13	1.18	1.21	3.06	2.21	24.00-24.25		
Southern Fertilizer Co., York, Pa...Ox Brand Diss. Bone Phos.	Ox Brand Diss. Bone Phos.	4.10	10.84	4.52	3.17	1.28	1.78	15.89	15.79	14.61	14.01	...	...	...	...	17.25	17.00-0.25	
Susquehannah Fert. Co., Balto., Md XXV Phosphate.....	Susquehannah Fert. Co., Balto., Md XXV Phosphate.....	35	4.70	6.40	4.39	2.86	2	21	2.66	11.30	11.32	9.09	9.26	1.16	1.26	2.76	1.47	21.00	19.75-1.25
Susquehannah Fert. Co., Balto., Md Dissolved S. C. Bone.	Susquehannah Fert. Co., Balto., Md Dissolved S. C. Bone.	35	14.02	10.78	2.41	3	70	0.93	1.82	17.36	16.30	16.43	14.48	...	...	...	19.00	17.50-1.50
Sheldon & Co., Baltimore, Md.	Sheldon's Guano	26	3.88	2.89	3.25	2.18	1.70	2.07	8.83	7.14	7.13	5.07	1.65	1.73	3.54	1.49	22.00	17.75-4.25	
Sheldon & Co., Baltimore, Md.	Sheldon's Guano	10	...	3.63	...	1.89	...	1.82	...	7.31	...	5.52	...	1.73	...	1.71	22.00	18.25-3.75	
Travers, S. W. & Co., Richmond,Va. Dissolved Bone Phosphate ...	Dissolved Bone Phosphate ...	22	12.10	10.85	2.50	3.47	1.34	1.65	15.94	15.97	14.60	14.32	...	...	...	...	17.25	17.25
Va.-Carolina Chem. Co., Richrdn, Va. Guar'd 14 Percent Acid Phos.	Guar'd 14 Percent Acid Phos.	23	11.69	11.72	2.83	3.19	1.41	1.39	15.93	16.30	14.52	14.91	...	...	...	...	17.25	17.75
Wooldridge, Robt. A., Baltimore, Md Liberty Bell Potash Mixture.	Liberty Bell Potash Mixture.	13	8.33	7.09	3.72	3.87	1.20	2	26	13.25	13.22	12.05	10.96	...	1.20	3.03	3.01	19.25-22.00	
Wooldridge, Robt. A., Baltimore, Md Florida Acid Phosphate.....	Florida Acid Phosphate.....	13	9.54	10.23	4.74	4.52	2.00	0	9.96	16.28	15.71	14.28	14.75	...	...	...	17.25	17.50
Zell Guano Co., Baltimore, Md.....	Little Giant	42	8.87	8.01	1.52	2	22	0	54	1.36	10.93	11.56	10.39	10.23	1.25	1.05	1.49	1.42	20.25-19.50
Zell Guano Co., Baltimore, Md.....	Dissolved Bone Phosphate ...	17.11	8.82	12.69	3.87	2	43	0.95	1.68	16.64	16.86	15.69	15.12	...	...	...	18.25	18.00
Zell Guano Co., Baltimore, Md.....	Dissolved Bone Phosphate ...	2	...	13.39	...	3.41	...	1.78	...	18.58	...	16.80	...	...	...	...	18.25	19.75
Zell Guano Co., Baltimore, Md.....	Dissolved Bone Phosphate ...	36	10.66	...	4.56	...	2.05	...	17.27	...	15.22	...	17.27	...	...	...	18.25	18.25

TABLE III.—*Continued*

This table does not make as good a showing as it should, thanks largely to the same parties that were responsible for like shortages last year, and to whom we are careful to call the attention of purchasers, in the report of the work for 1898. A glance at this table will show who these parties are; and again we remind farmers who may be disposed to invest in the goods of these firms, that there are too many firms doing business in this State, and who are evidently using every endeavor to do a perfectly square business, for any farmer to take chances with concerns whose record, as shown in our reports for the past two years, (and in some cases a good deal longer) are so much against them.

In calling special attention to those who, in our judgement will bear watching, the fact should not be lost sight of that the overwhelming majority of those engaged in the fertilizer business in this State, are, so far as our records show, doing a perfectly honorable, straightforward business. With comparatively few exceptions the manufacturers are undoubtedly endeavoring to the best of their ability to carry out not only the letter, but even the spirit of the law. It is only just to these, as well as to the purchasers of commercial fertilizers, that the few who from time to time may see fit to attempt to take advantage of the law should receive full credit for their efforts.

Again we call attention to table III, and we advise any one who may see fit to purchase any of the brands which have fallen short more than about a dollar to send us a sample of the same, taken and submitted in accordance with the instructions that will be mailed to any farmer in the State for the purpose. In this connection it is gratifying to note the greatly increased interest and appreciation on the part of farmers all over the State in the work the station is endeavoring to do in their behalf. We have received more samples of fertilizers from farmers during the last year than during any three or four previous years. During the shipping season this year we kept all the men in the field collecting samples that our limited resources would permit, and the samples collected by these Inspectors, together with the greatly increased number of sam-

ples submitted by farmers, enabled us to make a more thorough inspection of the goods shipped into the State than ever before. Of course the greater the number of samples the more reliable will be the conclusions to be drawn from the analyses, and we are very anxious to secure as many samples, from as many different parts of the State as possible. It will be absolutely necessary, however, that such samples be carefully taken and properly submitted. Every year we are compelled to reject a number of samples either because they are carelessly taken, or because the facts have not been certified in accordance with the rules prescribed by the Director under the statute concerning commercial fertilizers. Now, it is just about as easy to take a sample that will fairly represent the fertilizer as it is to take one that will not represent anything in particular, and the analysis of which could only mislead the party submitting it, and misrepresent the seller, while if the sample had been taken and submitted in accordance with our printed instructions it would be of great value, not only to the party submitting it, but to hundreds of others interested in fertilizers.

We will continue to pay the express charges on all samples so taken and we trust that the interest that purchasers have shown in this matter during the last year will continue.

AN ACT CONCERNING COMMERCIAL FERTILIZERS.
STATE OF WEST VIRGINIA.

CHAPTER LXXII.

AN ACT concerning Commercial Fertilizers and repealing chapter twenty-five of the acts of the Legislature of West Virginia of 1879.

[Passed March 6th, 1891.]

Be it enacted by the Legislature of West Virginia:

1. Every person or company who shall sell, offer or expose for sale in this State, any commercial fertilizer or manure, shall affix conspicuously to every package thereof a plainly printed statement, clearly and truly certifying the number of net pounds of fertilizer in the package, the name, brand or trade-mark under which the fertilizer is sold, the name and address of the manufacturer, the place of manufacture, and a chemical analysis, stating the percentage of nitrogen or its equivalent in ammonia, of potash soluble in distilled water, and of phosphoric acid in available form, soluble in distilled water, and reverted, as well as the total phosphoric acid. In the case of those fertilizers which consist of other cheaper materials, said labels shall give a correct general statement of the composition and ingredients of the elements relied upon, contained in the fertilizer which it accompanies. If any such fertilizer be sold in bulk, such printed statement shall accompany and go with every lot and parcel sold, offered or exposed for sale.
2. Before any commercial fertilizer is sold, offered or exposed for sale in this State, the manufacturer, importer or party who causes it to be sold, exposed or offered for sale, shall file with the Director of the West Virginia Agricultural Experi-

ment Station a certified copy of the statement named in section one of this Act, and shall also deposit with said Director, a sealed glass jar or bottle, or sealed tin can, containing not less than one pound of fertilizer named and described in said statement, accompanied by an affidavit that it is a fair average sample thereof. The making of any affidavit required by this chapter falsely, shall be purjury.

3. The manufacturer, importer, agent or seller of any brand of commercial fertilizer or material used for manurial purposes, shall pay for each brand at the time he files the statement required in section one of this Act, an analysis fee of ten dollars for each of the fertilizing ingredients claimed to exist in each and every brand of fertilizer which he sells, offers or exposes for sale within this State, provided that whenever the manufacturer, or importer shall have paid the analysis fee herein required, for any particular brand of fertilizer, no agent or seller shall be required to pay any other or further analysis fee for said brand.

4. The analysis fee required to be paid by section three of this Act shall be paid to the Treasurer of the West Virginia University for the use of the Agricultural Experiment Station, and the party making such payments shall take from said Treasurer triplicate receipts therefor, one of which he shall retain, and the others shall be deposited, one with the Director of the Agricultural Experiment Station, and the other with the Secretary of the Board of Regents of the West Virginia University, and by them filed and preserved in their respective offices.

5. Immediately after the filing of the receipt aforesaid with the Director of the Agricultural Experiment Station, said Director shall issue a certificate to the party-making such payment, stating the amount of fees paid, and the name, brand of trademark under which the fertilizer is sold, the name and address of the manufacturer or importer, the place of manufacture and the name and place of business of the dealer, and chemical analysis as set fourth in the statement by section one of this

Act, and that the applicant for said certificate is authorized to sell said fertilizer within the State of West Virginia for the period of one year from the first day of January to the 31st day of December, inclusive. Said certificates may be issued at any time for and during the current year, and may be issued during the month of December for the year commencing on the first day of January thereafter.

6. It shall be the duty of the Director of the West Virginia Agricultural Experiment Station to make or cause to be made a chemical analysis of every sample of commercial fertilizer so furnished him, and he shall print the result of such analysis in the form of a label or tag. Such printed label or tag shall set forth the name of the manufacturer, the place of manufacture, the brand of the fertilizer, and the essential ingredients contained in said fertilizer, expressed in terms and manner approved by the Director, together with a certificate from the Director, setting fourth that said analysis is a true and complete analysis of the sample furnished him of such brand of fertilizer of the ingredients claimed to be contained therein. And he shall also place upon each label or tag the money value per ton of such fertilizer, computed from its composition as he may determine. The Director shall furnish such labels or tags in quantities of one hundred or multiple thereof, to any person or company complying with this act, and desiring to sell, offer or expose for sale, any commercial fertilizer in this State, and shall receive therefor the sum of fifty cents for every one hundred so delivered, and shall without delay pay the same to the Treasurer of the West Virginia University for the use of the Agricultural Experiment Station, and take duplicate receipts therefore, one of which he shall retain and the other he shall deliver to the Secretary of the Board of Regents, who shall file and preserve the same in his office.

7. The Board of Regents of the West Virginia University shall expend the money received under the provisions of this Act in meeting the legitimate expenses of the Station, in making analysis of fertilizers, in experimental tests of same, and in such other experimental work and purchases as shall inure

to the benefit of the farmers of this State, and shall include in their annual report a statement of the receipts and disbursements thereof.

8. The Director of said Experiment Station is hereby authorized in person or by deputy to take sample for analysis from any lot or from any commercial fertilizer which may be in the possession of any dealer in the State. And he is hereby authorized to prescribe and enforce such rules and regulations as he may deem necessary to carry fully into effect the true intent and meaning of this act; and any agriculturist, a purchaser of any commercial fertilizer in this State, may take a sample of the same under the rules and regulations of the Director of the said experimental Station, or forward the same to the Experimental Station for analysis, and if the Director has reason to believe that the manufacturer of, or dealer in, said fertilizer has made any false or fraudulent representation in regard to said fertilizer, he shall cause the said sample to be analyzed free of charge, and certify the same to the person forwarding the sample.

9. Said Director shall also publish, by bulletin, the brand name and location of the manufacturer, and chemical analysis of every fertilizer analyzed or caused to be analyzed by him. Said last publication to be made, if practicable, before the time at which said fertilizer is to be applied to the soil.

10. Any manufacturer or vendor of any chemical fertilizer who shall sell, or offer or expose for sale, any commercial fertilizer without having previously complied with the provisions of this act herein before set forth, shall be deemed guilty of a misdemeanor, and upon conviction thereof, shall be fined not less than fifty nor more than five hundred dollars.

11. Any company, firm or person who shall willfully remove from or deface or change any label, or tag, or brand affixed to any package of fertilizer under the provisions of this act, before such fertilizer has been used for manorial purposes, or who shall sell such fertilizer without such label or tag being affixed thereto at the time of the sale, shall be deemed guilty of a misde-

meanor, and upon conviction thereof, shall be fined not less than ten nor more than fifty dollars for each offense.

12. Any company, firm or person who shall remove from or cause to be removed from any package of commercial fertilizer any statement, label or tag affixed thereto under the provisions of this Act, and affix or cause the same to be affixed to any other package of commercial fertilizer shall be deemed guilty of misdemeanor, and upon conviction thereof, shall be fined not less than ten nor more than fifty dollars for each offense.

13. Any company, firm or person violating any of the provisions of this Act, or who fails to comply with the requirements of this Act, shall be deemed guilty of a misdemeanor, and upon conviction thereof, shall, when no other penalty is prescribed, be fined not less than ten nor more than one hundred dollars for each offense. But this act shall not be construed to apply to anyone who manufactures fertilizers for his own use and not for sale.

14. The Director of said Experiment Station shall report to the prosecuting attorney of the county wherein the offense was committed, all violations of the provisions of this act, and failure to comply therewith, and a copy of any statement, label or tag required to be filed with said Director, or prepared by him, and any analysis made or caused to be made by him, when duly certified by said Director, shall be received in evidence in any prosecution or a suit for any violation of the provision of this Act.

15. That chapter 25 of the Acts of the Legislature of West Virginia, passed on the 4th day of March, 1879, entitled "An act to protect the purchasers of fertilizers in this State," be and the same is hereby repealed.

NOTICE.

Application for bulletins of this Station should be addressed to the Director of the West Virginia Agricultural Experiment Station, Morgantown, W. Va.

(The bulletins named below are available for distribution.)

- No. 4. The Creamery Industry; Its Adaptability to West Virginia.
- No. 5. The Selection of Milch Cows.
- No. 6. Six Month's Experience in Running a Creamery; Improved Process of Handling Cream and Churning.
- No. 12. The Canada Thistle.
- No. 14. Farm and Garden Insects and Experiments with Remedies; Notes of the Season.
- No. 15. Raspberry Gouty-Gall Beetle.
- No. 16. Yellow Locust, Insect Ravages upon.
- No. 17. Black Spruce, Insect Ravages.
- No. 19. Your Weeds and Your Neighbor's, Part 1. Weeds as Fertilizers.
- No. 20. Potato Culture and Fertilization. Tests of Some Varieties of Tomatoes.
- No. 21. Injurious Insects and Plant Diseases.
- No. 25. Plat Experiments with Commercial Fertilizers on Wheat.
- No. 26. Inspection of Commercial Fertilizers.
- No. 27. Notes on Pruning.
- No. 28. Plat Experiments with Commercial Fertilizers on Corn.
- No. 29. Experiments with Potatoes at the Station. Experiments on Corn at the Out-Stations.
- No. 30. Address and Notes on Sheep.
- No. 33. Sub-Irrigation in the Green house.
- No. 38. Potato Blight, Potato Scab.
- No. 40. Commercial Fertilizers.
- No. 42. Vegetables.
- No. 43. When, Why, What and How to Spray.
- No. 44. Practical Entomology.

Special Bulletin No. 2. Proceedings connected with the celebration upon the completion of the Station Building and the organization of the Sheepbreeders and Wool-Growers' Association and the State Horticultural Society.

Third Annual Report, 1890.

No. 51. Commercial Fertilizers, Jan., '98.

No. 52. Strawberries.

No. 53. Commercial Fertilizers, Dec. '98.

No. 54. Nursery Hints.

No. 55. Sugar Beets.

No. 56. Report on Investigations to Determine the Cause of Unhealthy Conditions of the Spruce and Pine From 1880-1893

No. 57. Commercial Fertilizers.

No. 58. The Effect of Pressure in the Preservation of Milk.

No. 59. Whole Corn Compared with Corn Meal for Fattening Hogs.

No. 60. Poultry Experiments.

No. 61. Sheep Feeding Experiments.

No. 62. A Study of the Effect of Incandescent Gas-light on Plant Growth.

